

**REMARKS**

In the Office Action, claims 1-20 and 22 were rejected and claims 21 and 23 were objected to. By the present Response, claims 1, 10, 17 and 22 are amended. Upon entry of the amendments, claims 1-23 will remain pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

**Rejections Under 35 U.S.C. § 102**

Claims 1-4, 6-13, 15-20 and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kirchner, U.S. Patent No. 6,309,333. Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. Applicants respectfully assert that the present invention, as claimed in amended independent claims 1, 10, 17 and 22 is patentable over the Kirchner reference.

Independent claims 1, 10, 17 and 22 are amended to more clearly point out certain of the claimed subject matter. Specifically, each independent claim now recites, in generally similar language, *generating a control signal or a counter vibration response based on a difference between the sensed vibration of the rotor and a calculated output response of vibration of the rotor.*

The Kirchner reference discloses a controller 118 including a microprocessor 124 and a memory device 126, the controller 118 being operable to receive feedback signals from sensors 114, compare the feedback signals with data stored in the memory device 126 and generate output signals for transmission to piezoelectric actuators (see column 9, lines 36-45). However, the reference does not teach or disclose the parameters which are analyzed by the controller algorithm to arrive at a control signal or a counter vibration response.

In particular, the Kirchner reference does not mention the calculation of an output response of the centralized motion of the rotor, as recited in the presently amended claims 1, 10, 17 and 22. In the present application, Applicants submit that the excitation or counter vibration response of the piezoelectric actuator 750 is controlled by a control algorithm  $H(s)$ , which is used to compute an output response  $X1(s)$  of the system including the turbomachine 100. The counter vibration response of the piezoelectric actuator is based on a difference between the output response  $X1(s)$  and sensed vibration  $X2(s)$ . Support for the above can be found in paragraph 28 of the present application. Therefore, for at least this reason, the present invention, as claimed in amended independent claims 1, 10, 17 and 22 is not anticipated by the Kirchner reference.

Claims 2-4, 6-9, 11-13, 15-16, 18-21 and 23 depend directly or indirectly from claims 1, 10, 17 and 22. Accordingly, the Applicants submit that claims 2-4, 6-9, 11-13, 15-16, 18-21 and 23 are allowable by virtue of their dependency from an allowable base claim. Applicants also submit that the dependent claims are further allowable by virtue of the subject matter they separately recite. Thus, it is respectfully requested that the rejections of claims 1-4, 6-13 and 15-23 under 35 U.S.C. §102(b) be withdrawn.

#### **Rejections Under 35 U.S.C. § 103**

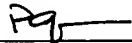
Claims 5 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kirchner, U.S. Patent No. 6,309,333 in view of Teel, U.S. Patent No. 4,972,389. However, claims 5 and 14 depend directly or indirectly from independent claims 1 and 10. The above rejection is not believed to obviate the deficiencies of the Kirchner reference with respect to the presently amended independent claims 1 and 10. Accordingly, Applicants submit that claims 5 and 14 are allowable by virtue of their dependency from an allowable base claim. Thus, it is respectfully requested that the rejections of claims 5 and 14 under 35 U.S.C. §103(a) be withdrawn.

**Conclusion**

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: 9/29/2004

  
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